

## REMARKS/ARGUMENTS

### Notice of Paper Submission Under 37 C.F.R. 1.34(a)

The present paper is submitted under 37 CFR 1.34(a) and MPEP 405 by the undersigned Applicant's representative who is not the attorney of record in the present application. All communications regarding the present application should continue to be directed to the attorney of record, Ivan S. Kavrukov, Cooper & Dunham LLP, 1155 Avenue of the Americas, New York, NY 10036.

### Claims 51-60, 71-90, and 101-110

Applicants appreciate the allowance of Claims 51-60, 71-90, and 101-110.

### Claims 1-10

The Office Action rejected Claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Snitzer (U.S. 4,712,075). Claim 1 has been amended to further recite structural features that are neither taught nor suggested by Snitzer. As understood, Snitzer discusses optical amplification in a *fiber optic* signal waveguide by virtue of lateral placement of its core in coplanar proximity to the core of an *optical fiber* having an active gain material (*see* Fig. 1, Figs. 7-9, col 4 lines 8-15). In contrast, Claim 1 as amended recites a substantially different configuration for a “semiconductor optical amplifier,” formed from “a vertical arrangement of substantially parallel material layers”, in which a signal waveguide and a laser cavity -- each of course achieving *lateral* confinement within their respective material layers – also “vertically coincide[e] at an evanescent coupling region.” Furthermore, the active layer of the laser cavity and the signal guiding layer are “vertically separated in said evanescent coupling region by at least one intervening layer.”

As understood, Snitzer appears to *teach away* from the structure of the semiconductor optical amplifier of Claim 1 as amended. In particular, Snitzer's coplanar side-by-side core configuration would seem to suggest placing the signal waveguide and the laser cavity in *lateral* proximity to each other in the *same plane* (*i.e.*, the same

material layer) of the device. In contrast, Claim 1 as amended specifies the active layer and the signal guiding layer are “vertically separated” by “at least one intervening layer” in the device. Among other advantages, the novel and nonobvious recited structure in Claim 1 as amended is advantageous in that substantially higher coupling is achieved as compared to the side-by-side, coplanar arrangement that would be suggested by Snitzer.

In summary, it is submitted that Claim 1 as amended is neither taught nor suggested by Snitzer. It is submitted that Claims 2-10 are allowable as depending from an allowable base claim.

**Undue Multiplicity Rejection of Claims 11-50, 61-70, 91-100, and 111-160**

The Office Action rejected Claims 11-50, 61-70, 91-100, and 111-160 based on undue multiplicity. In order to move the examined claims forward toward allowance and issuance, these claims 11-50, 61-70, 91-100, and 111-160 have been canceled without prejudice, and will serve as a basis for a subsequent continuation application. It is noted for the record that the rejection and subsequent cancellation of these claims has been for reasons unrelated to patentability.

### Summary and Conclusion

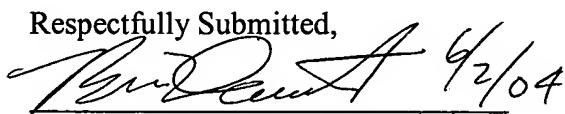
Claims 1-10, 51-60, 71-90, and 101-110 are now pending in the present application. Claims 1 and 4 have been amended. Claims 11-50, 61-70, 91-100, and 111-160 have been canceled.

The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to Deposit Account No. 50-3014, which is the deposit account of the undersigned Applicant's representative.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition, and the Commissioner is authorized to charge the requisite fees to Deposit Account No. 50-3014.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the attorney of record, Ivan S. Kavrukov, at (212)-278-0400. Entry of this amendment and allowance of this application are respectfully requested.

Respectfully Submitted,



A handwritten signature in black ink, appearing to read "Brian J. Daiuto". To the right of the signature is the date "6/2/04" written vertically.

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